

L Number	Hits	Search Text	DB	Time stamp
1	193	MP52	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/08 17:12
2	19	MP52.clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/08 17:12
3	12	crystallographically WITH calcium	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/08 17:15
4	0	MP52 and (crystallographically WITH calcium)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/08 17:16
5	11	(MP52 and bone) and crystal\$8	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/08 17:17
6	19	PAULISTA NEAR MICHAEL	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/08 17:17
7	39	(US-5994094-\$ or US-5658882-\$ or US-6409764-\$ or US-6328963-\$ or US-5700289-\$ or US-5691397-\$ or US-5522893-\$ or US-5306303-\$ or US-5262166-\$ or US-5171326-\$ or US-5149368-\$ or US-5137534-\$ or US-5135394-\$ or US-4772468-\$ or US-4655777-\$ or US-6120760-\$ or US-5801014-\$ or US-6531450-\$ or US-6727224-\$).did. or (US-20020102633-\$ or US-20020045568-\$ or US-20010016646-\$ or US-20020055143-\$).did. or (WO-9966060-\$ or EP-866125-\$ or WO-9833514-\$ or WO-9821972-\$ or WO-9706254-\$ or WO-9704095-\$ or WO-9703188-\$ or WO-9723612-\$ or WO-9504819-\$).did. or (JP-2000004882-\$ or JP-09031098-\$).did. or (WO-9961611-\$ or WO-9833514-\$ or WO-9741250-\$ or WO-9706254-\$ or WO-9704095-\$).did.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/08 17:19
-	3462	424/93.\$2.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 12:55
-	250	424/93.\$2.ccls. and bone.clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 12:56
-	147	(424/93.\$2.ccls. and bone.clm.) and matrix	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 12:57
-	103	((424/93.\$2.ccls. and bone.clm.) and matrix) and (calcium or tricalcium)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 12:57
-	22	(424/93.\$2.ccls. and bone.clm.) and (matrix WITH (calcium or tricalcium))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 12:58
-	1067	bone ADJ morphogenic ADJ protein	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 13:14

-	2	(bone ADJ morphogenic ADJ protein) and (calcium NEAR matrix)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 13:14
-	36	(MP52 and bone) and calcium	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/08 17:16
-	37	(MP52 and bone) and (calcium or tricalcium)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 13:24
-	26	((MP52 and bone) and (calcium or tricalcium)) and pure	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 13:25
-	330	alpha-tricalcium or beta-tricalcium	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 13:29
-	6	(alpha-tricalcium or beta-tricalcium) WITH matrix	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 13:26
-	116	(alpha-tricalcium or beta-tricalcium) and bone.clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 13:30
-	108	((alpha-tricalcium or beta-tricalcium) and bone.clm.) and (matrix or composition or support)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 13:52
-	8	((424/93.\$2.ccls. and bone.clm.) and (matrix WITH (calcium or tricalcium))) and pure	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 13:54
-	0	((424/93.\$2.ccls. and bone.clm.) and (matrix WITH (calcium or tricalcium))) and phase-pure	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 13:54
-	2	("6120760").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 15:19
-	146	GDF-5 GDF5 MP52 MP-52	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 17:09
-	106	(GDF-5 GDF5 MP52 MP-52 ) and (bone or cartilage)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 16:59
-	22	(GDF-5 GDF5 MP52 MP-52).clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 17:05
-	5	WO ADJ "9504819"	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/10/15 17:40
-	106	MP52 and bone	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/29 12:35
-	70	(MP52 and bone) and matri\$10	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/29 12:35

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(FILE 'HOME' ENTERED AT 17:23:06 ON 08 SEP 2004)

FILE 'MEDLINE' ENTERED AT 17:23:23 ON 08 SEP 2004

L1 1 S MP52

FILE 'MEDLINE, AGRICOLA, CANCERLIT, SCISEARCH, CAPLUS, MEDICNF' ENTERED AT 17:24:00 ON 08 SEP 2004

L2 40 S MP52  
L3 39 DUP REM L2 (1 DUPLICATE REMOVED)  
L4 24 S L3 AND (BONE OR CARTILAGE)  
L5 3 S L3 AND (CALCIUM OR MATRIX OR CRYSTALLOGRAPHIC?)  
L6 24 SORT L4 PY  
E PAULISTA MICHAEL?/AU  
L7 10 S E2  
L8 3 S L7 AND L2

=> d an ti so au ab pi l8 1-3

L8 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1998:335063 CAPLUS

DN 129:32362

TI Compositions with improved cartilage- and/or bone-inducing activity

SO Ger. Offen., 12 pp.

CODEN: GWXXBX

IN **Paulista, Michael**; Pohl, Jens; Pabst, Joachim; Heide, Helmut

AB A bioactive implant material with cartilage- and/or bone-inducing activity comprises (A) a bone- and/or cartilage-inducing protein or protein mixture and (B) a microporous Ca phosphate ceramic carrier matrix with interconnecting pores, which has inherent bone-inducing activity. The inducing protein preferably belongs to the TGF- $\beta$  superfamily, especially protein **MP52**. The implant material is useful for treatment of cartilage and/or bone damage or diseases (no data).

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19647853	A1	19980520	DE 1996-19647853	19961119
WO 9821972	A2	19980528	WO 1997-EP6463	19971119
WO 9821972	A3	19980917		
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9855533	A1	19980610	AU 1998-55533	19971119
EP 942758	A2	19990922	EP 1997-951919	19971119
EP 942758	B1	20040114		
R: DE, ES, FR, GB, IT				
JP 2001505097	T2	20010417	JP 1998-523215	19971119
ES 2210592	T3	20040701	ES 1997-951919	19971119

L8 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1997:145191 CAPLUS

DN 126:139895

TI Use of protein **MP52** for prevention and treatment of nervous system disorders

SO Ger. Offen., 21 pp.

CODEN: GWXXBX

IN Hoetten, Gertrud; Pohl, Jens; Bechtold, Rolf; **Paulista, Michael**; Unsicker, Klaus

AB Protein **MP52**, a growth and differentiation factor of the TGF- $\beta$  superfamily, and fragments and fusion proteins thereof are useful for prevention and treatment of nervous system disorders and neuropathol. conditions caused by aging of the nervous system. **MP52** improves the survival of dopaminergic neurons, at least partially through an action on the associated astrocytes. Thus, **MP52**

DNA on a vaccinia virus vector was expressed in 143B cells, and  
**MP52** DNA on prokaryotic vector pBP2 was expressed in Escherichia  
coli, purified by reversed-phase HPLC, and refolded at pH 8-10.  
Transcription of **MP52** DNA was observed in mouse brain and rat  
spinal cord.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19525416	A1	19970116	DE 1995-19525416	19950712
WO 9703188	A2	19970130	WO 1996-EP3065	19960712
WO 9703188	A3	19970227		
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA				
AU 9666151	A1	19970210	AU 1996-66151	19960712
ZA 9605938	A	19970217	ZA 1996-5938	19960712
EP 837938	A2	19980429	EP 1996-925740	19960712
R: DE, ES, FR, GB, IT				
JP 11509097	T2	19990817	JP 1996-505511	19960712
US 2002045568	A1	20020418	US 1998-981490	19980518
US 6531450	B2	20030311		
US 2003220248	A1	20031127	US 2003-356513	20030203

L8 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:464505 CAPLUS

DN 122:231763

TI A new growth/differentiation factor from the transforming growth factor  
β family

SO Ger. Offen., 20 pp.

CODEN: GWXXBX

IN Hoetten, Gertrud; Neidhardt, Helge; **Paulista, Michael**

AB A new member of the TGF-β family of growth/differentiation factors  
(MP-52) and a cDNA and the gene encoding it are described. A partial cDNA  
was obtained by PCR using amino acid sequence-derived primers and this was  
used to screen a com. human gene bank to obtain the gene. Expression of  
the cDNA in animal cells is using vaccinia and bovine papillomavirus  
vectors is demonstrated. The protein was found to have.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 4420157	A1	19950223	DE 1994-4420157	19940609
CA 2169171	AA	19950216	CA 1994-2169171	19940809
WO 9504819	A1	19950216	WO 1994-EP2630	19940809
W: AU, BY, CA, CN, CZ, HU, JP, KR, LT, NZ, RU, SI, UA, VN				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
AU 9474986	A1	19950228	AU 1994-74986	19940809
AU 688362	B2	19980312		
EP 713529	A1	19960529	EP 1994-924856	19940809
EP 713529	B1	20000202		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
CN 1129013	A	19960814	CN 1994-193027	19940809
HU 74271	A2	19961128	HU 1995-3853	19940809
HU 219504	B	20010428		
JP 09501053	T2	19970204	JP 1994-506226	19940809
AT 189475	E	20000215	AT 1994-924856	19940809
ES 2142953	T3	20000501	ES 1994-924856	19940809
PT 713529	T	20000630	PT 1994-924856	19940809
RU 2157406	C2	20001010	RU 1996-104372	19940809
CZ 288795	B6	20010912	CZ 1996-357	19940809
ZA 9405992	A	19950314	ZA 1994-5992	19940810
US 5994094	A	19991130	US 1994-288508	19940810
TW 448183	B	20010801	TW 1994-83108337	19940909
US 6764994	B1	20040720	US 1999-386450	19990831
GR 3032628	T3	20000531	GR 2000-400326	20000210
US 2004146979	A1	20040729	US 2004-800917	20040316

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(FILE 'HOME' ENTERED AT 17:23:06 ON 08 SEP 2004)

FILE 'MEDLINE' ENTERED AT 17:23:23 ON 08 SEP 2004

L1 1 S MP52

FILE 'MEDLINE, AGRICOLA, CANCERLIT, SCISEARCH, CAPLUS, MEDICONF' ENTERED  
AT 17:24:00 ON 08 SEP 2004

L2 40 S MP52

L3 39 DUP REM L2 (1 DUPLICATE REMOVED)

L4 24 S L3 AND (BONE OR CARTILAGE)

L5 3 S L3 AND (CALCIUM OR MATRIX OR CRYSTALLOGRAPHIC?)

L6 24 SORT L4 PY

=> d an ti so au ab pi l6 10 3 7 8 9 12 23

L6 ANSWER 10 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1998:335063 CAPLUS

DN 129:32362

TI Compositions with improved **cartilage-** and/or **bone**  
-inducing activity

SO Ger. Offen., 12 pp.

CODEN: GWXXBX

IN Paulista, Michael; Pohl, Jens; Pabst, Joachim; Heide, Helmut

AB A bioactive implant material with **cartilage-** and/or **bone**

-inducing activity comprises (A) s **bone-** and/or

**cartilage-**inducing protein or protein mixture and (B) a microporous

Ca phosphate ceramic carrier matrix with interconnecting pores, which has

inherent **bone-**inducing activity. The inducing protein

preferably belongs to the TGF- $\beta$  superfamily, especially protein

**MP52**. The implant material is useful for treatment of

**cartilage** and/or **bone** damage or diseases (no data).

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI DE 19647853	A1	19980520	DE 1996-19647853	19961119
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WO 9821972	A2	19980528	WO 1997-EP6463	19971119
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WO 9821972	A3	19980917		
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W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,  
DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR,  
KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ,  
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG,  
US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR,  
GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA,  
GN, ML, MR, NE, SN, TD, TG

AU 9855533	A1	19980610	AU 1998-55533	19971119
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EP 942758	A2	19990922	EP 1997-951919	19971119
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EP 942758	B1	20040114		
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R: DE, ES, FR, GB, IT

JP 2001505097	T2	20010417	JP 1998-523215	19971119
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ES 2210592	T3	20040701	ES 1997-951919	19971119
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L6 ANSWER 3 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1996:732173 CAPLUS

DN 126:1703

TI Recombinant preparation of dimeric human protein **MP52** and use  
for treating **bone** diseases

SO PCT Int. Appl., 33 pp.

CODEN: PIXXD2

IN Makishima, Fusao; Takamatsu, Hiroyuki; Miki, Hideo; Kawai, Shinji; Kimura,  
Michio; Matsumoto, Tomoaki; Katsuura, Mieko; Enomoto, Koichi; Satoh,  
Yusuke

AB Methods for recombinant preparation of mature monomeric human protein

**MP52** (119 amino acids) in transgenic Escherichia coli followed by

chemical dimerization of the protein are disclosed. Biol. effects of the

dimer on stimulating the growth of **bones** or **cartilage**

were also demonstrated. This dimer protein is useful in the treatment of

**cartilage** and **bone** diseases.

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9633215	A1	19961024	WO 1996-JP1062	19960419
	W: AL, AM, AU, BB, BG, BR, CA, CN, CZ, EE, GE, HU, IS, JP, KG, KR, LK, LR, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	CA 2216741	AA	19961024	CA 1996-2216741	19960419
	AU 9653470	A1	19961107	AU 1996-53470	19960419
	AU 704515	B2	19990422		
	CN 1187824	A	19980715	CN 1996-194702	19960419
	EP 955313	A1	19991110	EP 1996-910198	19960419
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, SI, FI				
	BR 9608019	A	19991130	BR 1996-8019	19960419
	JP 2997549	B2	20000111	JP 1996-531621	19960419
	AP 856	A	20000712	AP 1997-1138	19960419
	W: KE, LS, MW, SD, SZ, UG				
	PL 186518	B1	20040130	PL 1996-322945	19960419
	NO 9704812	A	19971219	NO 1997-4812	19971017
	US 2002102633	A1	20020801	US 1997-945459	19971209
	US 2003181378	A1	20030925	US 2003-365231	20030212
L6	ANSWER 7 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN				
AN	1997:244334 CAPLUS				
DN	126:221079				
TI	Human <b>MP52</b> protein, its manufacture with recombinant cells, and its use in pharmaceuticals				
SO	PCT Int. Appl., 25 pp. CODEN: PIXXD2				
IN	Kimura, Michio; Matsumoto, Tomoaki; Takahashi, Mikiko; Kawai, Shinji; Fujino, Yukio				
AB	This invention relates to a human <b>MP52</b> Arg and a pharmaceutical medical composition inter alia for promoting <b>cartilage</b> and <b>bone</b> morphogenation comprising human <b>MP52</b> Arg. In particular, the medical composition is useful for treating <b>bone</b> disease caused by abnormal <b>bone</b> metabolism such as osteoporosis, for treating <b>bone</b> fracture and for the purpose of orthopedic reconstruction, <b>bone</b> transplantation, cosmetic surgery and dental therapeutics. Further, it is useful for treating <b>cartilage</b> disorders. Recombinant CHO cells expressing prepro-human MP42 were prepared and cultured to obtain recombinant <b>MP52</b> . Treatment of ROB-C26 cells with the <b>MP52</b> increased total alkaline phosphatase activity in a concentration-dependent manner.				
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9706254	A1	19970220	WO 1996-EP3427	19960802
	W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM				
	ZA 9606489	A	19970226	ZA 1996-6489	19960731
	CA 2227204	AA	19970220	CA 1996-2227204	19960802
	AU 9667891	A1	19970305	AU 1996-67891	19960802
	AU 699708	B2	19981210		
	EP 842274	A1	19980520	EP 1996-928406	19960802
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI				
	CN 1192237	A	19980902	CN 1996-195841	19960802
	BR 9609983	A	19990112	BR 1996-9983	19960802
	JP 2000511155	T2	20000829	JP 1997-508115	19960802
	NO 9800375	A	19980128	NO 1998-375	19980128
L6	ANSWER 8 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN				
AN	1997:230835 CAPLUS				

DN 126:207826  
 TI Recombinant preparation of human protein **MP52** for medical and cosmetic applications  
 SO Jpn. Kokai Tokkyo Koho, 24 pp.  
 CODEN: JKXXAF  
 IN Kimura, Michio; Matsumoto, Tomoaki; Takahashi, Mikiko; Kawai, Shinji; Fujino, Yukio  
 AB High-mol.-weight human protein **MP52** (HMW **MP52**), a growth and differentiation factor of the TGF- $\beta$  superfamily, is prepared by expression of its encoding DNA sequences in transgenic animal cells. HMW **MP52** consists of dimers of entire HMW **MP52** (501 amino acids) or its fragments. Its uses for orthopedic reconstruction, **bone** implantation, cosmetic surgery, dental implantation, etc., are claimed.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09031098	A2	19970204	JP 1995-218022	19950724
WO 9704095	A1	19970206	WO 1996-JP2065	19960724
W: AU, CA, CN, HU, KR, MX, NO, NZ, RU, UA, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, NL, PT, SE				
CA 2224289	AA	19970206	CA 1996-2224289	19960724
AU 9665304	A1	19970218	AU 1996-65304	19960724
AU 704364	B2	19990422		
EP 866125	A1	19980923	EP 1996-925064	19960724
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI				
CN 1196087	A	19981014	CN 1996-196950	19960724
NO 9800300	A	19980123	NO 1998-300	19980123

L6 ANSWER 9 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1998:542980 CAPLUS  
 DN 129:140696  
 TI Freeze-dried composition of **bone** morphogenetic protein human **mp52**  
 SO PCT Int. Appl., 10 pp.  
 CODEN: PIXXD2  
 IN Inagaki, Mitsuko; Ichikawa, Hideki  
 AB The invention relates to a stable freeze-dried composition of a **bone** morphogenetic protein human **MP52** wherein coloration and shrinking of **MP52** during storage and aggregation at the re-dissoln. can be prevented. The composition is obtained by mixing **MP52** with mannitol at a weight ratio of 1 : 5 to 1 : 50 followed by freeze-drying.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9833514	A1	19980806	WO 1998-JP371	19980129
W: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, GW, HU, ID, IL, IS, JP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, US, UZ, VN, YU, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9856791	A1	19980825	AU 1998-56791	19980129
AU 737595	B2	20010823		
EP 972520	A1	20000119	EP 1998-901044	19980129
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI				
BR 9807537	A	20000321	BR 1998-7537	19980129
NZ 336509	A	20010330	NZ 1998-336509	19980129
AP 983	A	20010716	AP 1999-1602	19980129
W: GH, GM, KE, LS, MW, SD, SZ, UG, ZW				
MX 9906784	A	20000731	MX 1999-6784	19990721
NO 9903702	A	19990929	NO 1999-3702	19990729
US 2004132653	A1	20040708	US 2003-666535	20030922

L6 ANSWER 12 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1999:764189 CAPLUS  
 DN 132:9630  
 TI Expression of mutant recombinant human **MP52** protein monomer with **bone** morphogenetic activity and its use for preventing and

treating **cartilage** and **bone** diseases

SO PCT Int. Appl., 26 pp.  
CODEN: PIXXD2

IN Kawai, Shinji; Kimura, Michio; Muraki, Yoshifumi; Katsuura, Mieko

AB A mutant recombinant human **MP52** protein monomer belonging to TGF- $\beta$  superfamily with two-fold higher activity for inducing osteoblast cell line differentiation was created by site-directed mutagenesis replacing a cysteine contributing to dimer formation with another amino acid. Another amino acid replacing a cysteine can be serine, threonine, alanine, or valine, and preferably alanine. The mutant recombinant protein can be expressed in *Escherichia coli*, yeast, insect cells, and mammalian cells that have been transformed with an expression vector having a DNA sequence coding for the monomer protein. The use of the mutant recombinant human **MP52** protein monomer for prevention and therapeutic treatment of **bone** and/or **cartilage** diseases such as osteoporosis, osteoarthritis or arthroseitis, **bone** fracture, and lack of teeth root or tooth socket is claimed.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9961611	A1	19991202	WO 1999-IB866	19990514
W: AE, AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, US, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
JP 11335398	A2	19991207	JP 1998-141379	19980522
AU 9935309	A1	19991213	AU 1999-35309	19990514
EP 1078054	A1	20010228	EP 1999-917029	19990514
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI				
JP 2002516098	T2	20020604	JP 2000-550995	19990514

L6 ANSWER 23 OF 24 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2004:550724 CAPLUS

DN 141:76794

TI Lyophilized composition of **bone** morphogenetic factor human **MP52**

SO U.S. Pat. Appl. Publ., 4 pp., Cont.-in-part of U.S. Ser. No. 355,551, abandoned.  
CODEN: USXXCO

IN Ichikawa, Hideki; Inagaki, Mitsuko

AB By mixing **bone** morphogenetic factor human **MP52** with mannitol at a weight ratio of 1:5-50, followed by lyophilization, a stable lyophilized composition of **bone** morphogenetic factor human **MP52** is obtained which prevents coloring and atrophy of the lyophilized product of **bone** morphogenetic factor human **MP52** during storage and also prevents cohesion at the time of reconstitution. To 1 mg/mL of an aqueous solution of purified rhMP52, 10, 25, and 50 mg, D-mannitol was added. After the resulting mixture was filtered through a 0.22- $\mu$ m membrane filter, 1 mL portions of the filtrate so obtained were filled in vials in a sterile fashion. They were lyophilized, whereby a composition of the present invention was prepared in the form of pharmaceutical product.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004132653	A1	20040708	US 2003-666535	20030922
WO 9833514	A1	19980806	WO 1998-JP371	19980129
W: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, GW, HU, ID, IL, IS, JP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, US, UZ, VN, YU, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				

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